- China will additionally purchase $32 billion of U.S. agricultural goods over the same two-year period;

- Language further enabling U.S. businesses to initiate a criminal investigation into the theft of trade secrets in China;

- The removal of barriers on U.S. banking institutions to enable U.S. banks, insurers, and other financial services companies to expand in the Chinese market;

- The creation of a dispute-resolution office aimed at fairly adjudicating disagreements between U.S. businesses and their Chinese partners;

- The U.S. cut the previously imposed tariff rate from 15 percent to 7.5 percent on roughly $120 billion of Chinese products. The deal leaves those tariffs in place, but former President Trump signaled a possible removal of those tariffs in forthcoming negotiations. The U.S. also canceled 15 percent tariffs on roughly $156 billion in Chinese consumer products that were set to go into effect in December;

- Chinese commitment to not devalue its currency or make persistent interventions in its currency market.

Joe Biden was elected as the 46th President of the United States in November 2020. Following his election, President Biden's specific plan to continue trade negotiations with China was unclear, but President Biden signaled throughout his campaign that he would work with allies to push China to follow international trade rules and uphold the terms of the agreement struck in January.

The U.S. and China began their first high-level meetings under the Biden administration in late March of 2021 in Anchorage, Alaska. The U.S. delegation, led by Secretary of State Antony Blinken, billed the two-day meeting as a chance for the U.S. and China to air divisive issues, deescalate their rivalry, and determine areas of cooperation. While no substantive progress was made during the talks, this did represent the first in-person meeting between the two parties in nearly eight months. Happening concurrently to these talks, Katherine Tai was confirmed as U.S. Trade Representative in a unanimous vote of the Senate on March 17, 2021. In an interview with *The Wall Street Journal* following her confirmation, Ms. Tai indicated that the U.S. had no intention of lifting tariffs imposed on Chinese goods by the Trump administration in the near future. The second quarter of 2021 saw relatively little movement in the ongoing trade dispute, though the two sides did meet virtually in late May. These meetings consisted of little more than Ms. Tai reaffirming the Biden administration's guiding principles as it pertains to the trade dispute and the Chinese delegation further calling on the U.S. to roll back the remaining tariffs on Chinese imports. During the third quarter of 2020, trade negotiations between the U.S. and China continued to stall, though business leaders did call on the Biden administration to resume talk and cut tariffs on imports in a letter to Ms. Tai and Janet Yellen.

On March 11, 2020, the World Health Organization ("the WHO") declared the outbreak of a novel coronavirus that originated in Wuhan, Hubei Province, China to be a global pandemic. COVID-19 is considered highly dangerous to vulnerable populations such as the elderly and/or those with pre-existing conditions and chronic ailments that compromise the human immune system. The first case of the novel coronavirus in the United States was confirmed in Washington state on January 21, 2020. The spread of the virus and its highly contagious nature became apparent in the U.S. and globally during the month of February. Beginning on February 24 and continuing through the

following week, in the first of several major inflection points shaping public sentiment surrounding the virus in the United States, U.S. equity market indices experienced their greatest weekly declines since October 2008 on fears of the detrimental economic effects of the continuing spread of the virus. COVID-19 continued to spread across the U.S. through the latter days of February and early March, compelling declarations of public health emergencies by state governors in affected areas. Additionally, the Federal Open Market Committee (the "FOMC") cut the benchmark interest rate by fifty basis points on March 3 in an effort to support the economy in anticipation of the detrimental effects of the virus on economic activity.

In another major inflection point, the Centers for Disease Control mandated the cancellations and postponements of public and private events of more than fifty people for at least eight weeks on March 15. Through the balance of March, state and municipal governments issued various "stay-at-home" and "shelter-in-place" orders, requiring many businesses deemed "non-essential," such as restaurants, theaters, and small retail, to either close or materially alter operations. Major market indices continued to fall through the end of March. For reference, the S&P 500 closed at 2,585 on March 31, down approximately 24 percent from its all-time high of 3,386 on February 19.

The outbreak of COVID-19 in the United States and abroad spawned a public health crisis and substantial economic disruption for many American businesses and individuals in 2020. Through the end of the second quarter of 2021, Congress had enacted six separate pieces of legislation aimed at managing the pandemic and mitigating the economic burden placed on families and businesses. These legislative actions and the dates on which they were enacted into public law are summarized in the sections below:

- H.R. 6074, Coronavirus Preparedness and Response Supplemental Appropriations Act - March 6, 2020: Legislation enacted that provides $8.3 billion emergency funding for public health agencies and coronavirus vaccine research. The bill appropriated $7.8 billion in discretionary funding to federal, state, and local health agencies and$500 million in mandatory spending through changes to Medicare.

- H.R. 6201, Families First Coronavirus Response Act - March 18, 2020: Legislation enacted that provides $192 billion in funding through various components to those in need. These components include the enhancement of unemployment insurance benefits, increased federal Medicaid and food-security spending, mandates requiring certain employers to provide paid sick, medical, and family leave, and free coverage for coronavirus testing under government health programs.

- H.R. 748, Coronavirus Aid, Relief, and Economic Security (CARES) Act - March 27, 2020: Legislative relief package totaling approximately $2 trillion to address the near-term economic impact of the virus on American families and businesses. Key items in the legislation include the following:

  - $500 billion in financial assistance for distressed sectors of the economy and sectors deemed critical to national security. Approximately $450 billion of this funding supported loans to businesses, states, and municipalities through a new Federal Reserve lending facility.

  - Approximately $380 billion in economic support for small businesses, which will largely be used for the creation of the Paycheck Protection Program ("the PPP"). The PPP offered loans to small businesses to help them avoid laying off workers. The portions of

these loans spent on payroll, rent, or utilities will be eligible for forgiveness.

- Direct payments to taxpayers on a graduated scale for those earning annual income up to $99,000 ($198,000 for married couples). Taxpayers with annual incomes up to$75,000 ($150,000 for married couples) will receive payments of $1,200. These payments will gradually phase out up to the annual income cap of $99,000. Families are also eligible to receive $500 per qualifying child. Estimated provision of approximately $290 billion.
- Further expansion of unemployment benefits, extending unemployment insurance by thirteen weeks, boosting benefits by up to $600 per week for four months, and expanding eligibility requirements. Estimated cost is approximately $270 billion.
- Direct federal aid to hospital and healthcare workers of approximately $150 billion. This funding was provided to help hospitals, community health centers, and other healthcare providers prepare for and respond to the pandemic.
- § Various tax incentives, including provisions allowing businesses to defer payroll taxes, which act as key sources of funding for Medicare and Social Security. Another key provision allowed individual taxpayers to use business losses in recent years to offset nonbusiness income.

• H.R. 266, Paycheck Protection Program and Health Care Enhancement Act - April 24, 2020: Bill providing an additional $383 billion in economic support for small businesses ($321 billion to replenish the PPP), $75 billion in funding for hospitals, and approximately $25 billion to fund greater COVID-19 testing capacities.

• Consolidated Appropriations Act - December 27, 2020: Legislative package delivering$868 billion of federal support to mitigate the economic impact of the COVID-19 pandemic. Key items in the legislation include the following:

  - $302 billion in aid to small businesses. Allows businesses to receive a second round of PPP loans and ensures that this assistance will not be taxed.
  - Direct payments to individuals earning up to $75,000. Taxpayers with annual incomes up to $75,000 will receive a payment of $600, with an additional $600 for each dependent child.
  - Increased unemployment benefits of $119 billion. Adds $300 more per week to unemployment benefits, continues "gig" worker eligibility for unemployment, and lengthens the maximum amount of time a worker can receive unemployment benefits to 50 weeks.
  - Aid for schools of $82 billion. This funding provides grants primarily to public K-12 schools, with a portion set aside for grants directed to higher education.
  - Health specific measures of $78 billion. Included is $29 billion for the procurement and distribution of coronavirus vaccines and $22 billion for testing, tracing, and mitigation of coronavirus.
  - Other measures of $123 billion. The legislation also includes funding for transportation, increased food stamp benefits, additional rental assistance, and other programs.

Inflation

According to the Bureau of Labor Statistics ("BLS"), the Consumer Price Index ("CPI") increased 0.4 percent in September 2021 (on a seasonally adjusted basis) after increasing 0.5 percent in July and 0.3 percent in August. The unadjusted CPI stood at 274.31 (CPI-U all urban consumers, 1982-1984 = 100), an increase of 5.4 percent over the previous twelve months. The Core CPI, which excludes food and energy prices, increased 0.2 percent in September, and Core CPI increased 4.0 percent on an unadjusted basis over the previous twelve months.

The Producer Price Index ("PPI") is generally recognized as predictive of near-term consumer inflation. The PPI for total final demand (seasonally adjusted) increased 0.5 percent in September 2021 following increases of 1.0 percent and 0.7 percent in July and August, respectively. The PPI for final demand excluding food, energy, and trade services increased 0.1 percent in September. On an unadjusted basis, the twelve-month change in the total final demand PPI was an increase of 8.6 percent through September 2021, which is the largest advance since 12-month data were first calculated in November 2010. The increase in the PPI was below projections made by economists surveyed by *Reuters*, which forecasted an increase of 0.6 percent in the PPI in September.

Oil and Gasoline

In the first quarter of 2020, oil prices fell dramatically as the travel restrictions due to the ongoing coronavirus pandemic depressed demand for oil. U.S. crude futures closed the quarter trading at $20.48 per barrel, down 66 percent over the course of the first quarter. Oil prices recovered in the second quarter of 2020, bolstered by the return of demand for fuel following the loosening of lockdown restrictions in the U.S., a slide in domestic production in the U.S., and an agreement between OPEC members reached in early April to cut output. In the third quarter of 2020, demand for gasoline in the U.S. was relatively stagnant, keeping U.S. crude oil prices around $40 per barrel for much of the quarter. U.S. crude oil prices ended the third quarter at just below $40 per barrel, down from a peak of just above $43 per barrel in late August. Brent crude futures also closed the quarter at approximately $42 per barrel and spent most of the quarter in the range of $40 to $43 per barrel. Oil prices ended the year with momentum, though global benchmarks still posted losses for the whole of 2020.

In the first quarter of 2021, oil prices gained approximately 20 percent. Aiding the gain in oil prices in the first quarter were a surprise announcement of production cuts by OPEC and extreme weather in Texas, which boosted demand for fuel and power and threatened production. Pricing gains were tempered by a spike in COVID-19 cases in Europe and renewed lockdowns, which hampered demand in global oil markets. Brent crude oil closed the second quarter of 2021 at $76.94 per barrel, a 16 percent increase from the closing price at the end of the first quarter. WTI closed the second quarter at $73.52 per barrel, a 24 percent increase from the end of the first quarter. Both benchmarks closed the quarter slightly below highs reached in 2018 on declining oil inventories both in the U.S. and globally. Consumer demand for energy products continued to recover in the second quarter with the ongoing loosening of travel restrictions domestically and abroad.

Oil benchmarks rose again in the third quarter of 2021, as the spot price for Brent crude oil closed the quarter at $77.81 per barrel and WTI closed the quarter at $75.22 per barrel. Brent was up 1.1 percent over its second quarter close, and WTI was up 2.3 percent. Demand for oil in the third quarter continued to recover at an increasing pace, as vaccine rollouts in developed countries continued to aid consumer and overall economic activity in a pattern seen in the first two quarter of 2021 as well. The pace of the recovery in demand was hampered in the third quarter by the rapid rise in prices seen over the course of 2021. Oil supply volume in the third quarter was impacted by a deal among

OPEC+ producers (OPEC members and Russia) that would raise production by 400,000 barrels a month from August 2021 through December 2021. In September, the volume of oil supplies worldwide was 97 million barrels per day, which was approximately 2.5 million less than global demand. Due to the impacts of Hurricane Ida on the U.S. Gulf Coast in late August and early September, 1.7 million barrels per day of U.S. production was suspended, contributing to the global supply imbalance in the third quarter.

The Baker Hughes North American (U.S.) total oil rig count increased 11.2 percent in the third quarter of 2021 after increasing 10.0 percent during the second quarter. The total rig count was up 98.5 percent over the last twelve months ended September 30, 2021. Brent crude oil, which is the global benchmark for oil prices, traded at an average of $74 per barrel in September 2021, which is $34 per barrel higher than the average for September 2020. The U.S. Energy Information Administration ("EIA") expects crude oil prices to average $81 per barrel in the fourth quarter of 2021 and $72 per barrel in 2022. The EIA estimates that U.S. crude oil production in 2021 will average 11.0 million barrels per day, with production rising in 2022 to 11.7 million barrels per day.

Retail Sales and Personal Consumption

According to the Census Bureau of the U.S. Department of Commerce, the advance estimates of U.S. retail and foodservice sales (adjusted for seasonal, holiday, and trading-day differences) for September 2021 increased 0.7 percent from the previous month and 13.9 percent relative to September 2020. Core retail and foodservice sales (which exclude motor vehicles and parts) increased 0.8 percent relative to the previous month and increased 15.6 percent relative to September 2020. In the third quarter of 2021, retail and foodservice sales decreased 0.7 percent relative to the second quarter and were 14.9 percent above the level observed in the third quarter of 2020.

Personal consumption spending represents approximately 70 percent of total economic activity and is a primary component of overall economic growth. Real personal consumption spending increased 1.6 percent in the third quarter of 2021 following increases of 11.4 percent and 12.0 percent in the first quarter and second quarters, respectively. According to the BEA, durable goods purchases decreased 26.2 percent in the third quarter of 2021 following increases of 50.0 percent and 11.6 percent in the first and second quarters, respectively.

The Financial Markets

The Dow Jones Industrial Average, NASDAQ, and broad market Wilshire 5000 posted slight losses in the third quarter of 2021, while the S&P 500 remained essentially unchanged (0.23 percent gain). The indices all posted month-over-month gains in July and August before retreating in September. During the third quarter, investors anticipated slower gains and more persistent volatility in markets based on a number of factors. Among these factors were signals by the Federal Reserve and other global central banks that pandemic-era stimulus measures may be coming to an end. Chinese property giant Evergrande Group skipped an $83.5 million interest payment in late September, sending shockwaves throughout the global financial community surrounding the prospect of a potential contagion event if Evergrande were to default on its massive amount of debt. Further, Congress remained embroiled in a battle during September over the Democrats' proposed $1 trillion infrastructure bill, progress on which was further impeded by a separate social policy and climate package proposed by Democrats. These and other points of contention and uncertainty caused investor sentiment to wane in September, leading to the quarterly losses. During the third quarter, the Dow Jones Industrial Average dropped 1.9 percent from its second quarter close, the S&P 500 gained 0.2 percent, the NASDAQ dropped 0.4 percent, and the broad market Wilshire 5000 Index dropped 0.6 percent.

The following provides a brief summary of each index's performance in the third quarter of 2021:

- The Dow Jones Industrial Average ended the third quarter of 2021 at 33,844. This represents a 1.9 percent decline for the quarter, following increases of 4.6 percent in the second quarter and 7.8 percent in the first quarter. The Dow was up 7.3 percent over the entirety of 2020 after increasing 22.3 percent in 2019.

- The S&P 500 Index ended the third quarter of 2021 at 4,308. This represents a 0.2 percent increase for the quarter, following increases of 8.2 percent in the second quarter and 5.8 percent in the first quarter. The S&P 500 posted a gain of 16.3 percent in 2020 after posting a gain of 28.9 percent in 2019.

- The NASDAQ Composite Index ended the third quarter of 2021 at 14,449. This represents a 0.4 percent decline for the quarter, following increases of 9.5 percent in the second quarter and 2.8 percent in the first quarter. During 2020, the NASDAQ rose by 43.6 percent after rising 35.2 percent in 2019.

- The broad market Wilshire 5000 Index ended the third quarter of 2021 at 44,850. This represents a 0.6 percent decline for the quarter, following increases of 8.1 percent in the second quarter and 5.8 percent in the first quarter. The Wilshire 5000 index was up 27.7 percent in 2019 and up 20.0 percent in 2020.

Treasury yields were generally stagnant during the third quarter of 2021, though yields on longer maturity instruments increased in September on the FOMC's signaling that it could begin to taper monthly bond purchases in November and raise rates in 2022. Bond prices display an inverse relationship with their respective yields and rise as yields fall. Additionally, bond prices can shift abruptly due to investor reactions to major variances in reported economic data versus market expectations (e.g., expected inflation, growth, monetary policy, and other Federal Reserve actions). Yields rallied to close the third quarter, bolstered not only by the FOMC news, but also by continued business reopenings, improving consumer demand, and falling coronavirus cases in the U.S. Still, over the course of the third quarter, monthly average yields on 10-year Treasury notes fell 15 basis points from the end of June to the end of September. The 10-year Treasury note closed the quarter at a monthly average yield of 1.37 percent in September. The spread between the 2-year and 10-year Treasury note yields narrowed to 113 basis points, down from 132 basis points at the end of the second quarter. Investors generally view the slope of the yield curve as an indicator of the direction of the economy. Steeper upwardly sloped yield curves imply higher inflation and greater future economic growth. The yield curve flattened slightly in the third quarter, as seen in the narrowing between the yields on 2-year and 10-year Treasury notes.

Economists surveyed by *The Wall Street Journal* anticipate yields to increase marginally through the end of 2021 (10-year note yield of 1.69 percent in December of 2021), before recovering towards levels seen in 2019 in the coming years (10-year note yield of 1.94 percent in June 2022 and 2.15 percent by December of 2022).

Monetary Policy and Interest Rates

During the first quarter of 2018, Jerome "Jay" Powell was named Chairman of the Federal Reserve, replacing Janet Yellen. Despite pressure and rhetoric from former President Trump aimed at keeping the target rate stagnant, the FOMC raised the target rate four times over the course of 2018, ending the year in a range of 2.25 percent to 2.50 percent. After leaving rates unchanged through the first half of

2019, the rate cuts alluded to in previous meetings by Fed officials materialized in the third quarter of 2019, as eight of ten Fed officials voted to lower the benchmark rate by a quarter-percentage point to a range between 2.00 percent and 2.25 percent at the July meeting of the FOMC and again at the September meeting, leaving the benchmark rate at a range between 1.75 percent and 2.00 percent at the end of the third quarter. FOMC officials would vote to lower rates once more in October, dropping the benchmark rate to a range of 1.50 percent to 1.75 percent at year-end 2019.

On March 3, 2020, the Federal Reserve executed an unscheduled rate cut of one-half of a percentage point, reducing the federal-funds rate to a range between 1 percent and 1.25 percent. This was the first-rate change made in between scheduled FOMC meetings since the financial crisis of 2008, as the Fed moved to prevent a pullback in credit availability that could amplify a slowdown in U.S. growth caused by the COVID-19 pandemic. The Fed instituted another emergency rate cut on March 15, cutting the benchmark interest rate by an additional 100 basis points to a range of 0 percent to 0.25 percent. This was the second emergency rate cut in as many weeks, an unprecedented action by the FOMC. In addition, the Fed announced that it would buy $700 billion in Treasury and mortgage-backed securities in response to the COVID-19 pandemic.

With interest rates cut virtually to zero, the Fed relied on new lending programs in the second quarter of 2020 to stimulate the U.S. economy. On April 9, the Fed announced three new emergency lending facilities to implement the relief provided by the CARES Act and support the work of the Treasury Department and the Small Business Administration. These new lending facilities included the following:

- Paycheck Protection Program Lending Facility, which will purchase PPP loans from banks, allowing banks to continue to lend freely under the PPP program and remove these non-performing loans from bank balance sheets.
- Main Street Businesses Lending Program, which will purchase $600 billion in debt from businesses employing less than 10,000 workers or having fewer than $2.5 billion in revenues. Any required payments on these loans will be deferred for a year.
- Municipal Liquidity Facility, which will purchase $500 billion in debt from states and cities with populations over 1 million.

In addition, the Fed announced the expansion of the Primary and Secondary Corporate Market Credit Facilities and the Term Asset-Backed Securities Loan Facility to support up to $750 billion in credit purchases.

During FOMC meetings in the third quarter of 2020, the Fed reiterated its commitment to support the economy through aggressive monetary policy. Though no new policy steps or programs were announced during the third quarter, the FOMC voted to leave rates unchanged in a range between 0 percent and 0.25 percent at its July and September meetings. New language from the FOMC signaled a shift away from the Fed's longtime strategy of pre-emptively lifting rates to head off higher inflation. To summarize, the FOMC will now wait for inflation to increase above 2 percent for several periods before considering raising the benchmark rate, a goal termed as "symmetric inflation targeting." The FOMC had previously used the benchmark rate as a mechanism to keep inflation low. The FOMC met in November and December during the fourth quarter of 2020. While no new policy was enacted during these meetings, the Fed did clarify its plan for long-term support for the economy in an FOMC statement following the December meeting. The FOMC met in January and March 2021 and at both meetings pledged to keep its current expansionary monetary policies in place until the U.S. economy fully recovers from the effects of the COVID-19 pandemic.

Of note, Fed officials did signal at the March meeting that they expect the economy to recover more quickly than previously thought according to new projections released in conjunction with the March meeting. Despite this expectation, only seven of the eighteen members of the FOMC anticipate raising rates in 2022 or 2023, which is up from five members in December 2020.

During the second quarter of 2021, the FOMC met in April and June. At the April 28 meeting, Fed officials voted unanimously to maintain the central bank's current policies as the economy continues to mend from the effects of the pandemic. In a statement following the April meeting, Fed officials commented on the ongoing recovery and rising inflation in 2021: "Amid progress on vaccinations and strong policy support, indicators of economic activity and employment have strengthened. The sectors most adversely affected by the pandemic remain weak but have shown improvement. Inflation has risen, largely reflecting transitory factors." The FOMC met again in June, where committee members and Chairman Powell changed their tone in regard to the timing of interest rate increases. FOMC officials signaled that they expected to raise interest rates by late 2023 after the June meeting, which is earlier than they had anticipated following previous meetings in 2021. Fed officials also indicated that they expected an eventual tapering of the central bank's bond-buying program, though the timing of this winding down remained uncertain. Chairman Powell stated that many Fed officials believe that the economy will reach the Fed's goals of "maximum employment" and sustained inflation at 2 percent sooner than previously anticipated in his statement following the June meeting, excerpts of which can be found below:

The Fed's policy actions have been guided by our mandate to promote maximum employment and stable prices for the American people, along with our responsibilities to promote the stability of the financial system. As the Committee reiterated in today's policy statement, with inflation having run persistently below 2 percent, we will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent.... As is evident in the SEP, many participants forecast that these favorable economic conditions will be met somewhat sooner than previously projected; the median projection for the appropriate level of the federal funds rate now lies above the effective lower bound in 2023. Of course, these projections do not represent a Committee decision or plan, and no one knows with any certainty where the economy will be a couple of years from now. More important than any forecast is the fact that, whenever liftoff comes, policy will remain highly accommodative. Reaching the conditions for liftoff will mainly signal that the recovery is strong and no longer requires holding rates near zero.

Summary and Outlook

The COVID-19 pandemic adversely affected nearly every facet of the U.S. economy during 2020, but the economy continued to show signs of stabilizing in the fourth quarter of the year and the first half of 2021. This trend continued into the third quarter of 2021. The unadjusted CPI increased 0.4 percent in September 2021 and increased 5.4 percent from September 2020 to September 2021. Core CPI increased 0.2 percent in September 2021 and 4.0 percent over the prior twelve months.

The Dow Jones Industrial Average, NASDAQ, and broad market Wilshire 5000 posted slight losses in the third quarter of 2021, while the S&P 500 remained essentially unchanged. The indices all posted month-over-month gains in July and August before falling back in September. Investors anticipated slower gains and more persistent volatility in

markets based on a number of factors including global central banks' perceived willingness to wind down pandemic induced stimulus programs.

Prior to the disruption caused by the pandemic, the unemployment rate had remained stable for several months in the range of 3.5 percent to 4.0 percent, continually nearing all-time lows. The unemployment rate was 4.8 percent in September 2021. The unemployment rate has consistently fallen month-over-month since peaking at 14.7 percent in April 2020. Labor force participation remains low relative to historic levels at 61.6 percent.

Following the deep contraction in GDP in the second quarter of 2020 and subsequent rebounds in GDP in the past four quarters, economists expect the recovery to continue in future quarters. A survey of economists conducted by The Wall Street Journal reflects an average GDP forecast of 7.0 percent annualized growth in the third quarter of 2021, followed by 5.4 percent annualized growth in the fourth quarter. GDP declined 3.4 percent in 2020 compared to annual GDP growth of 2.3 percent and 2.9 percent in 2019 and 2018, respectively. Economists anticipate an annualized growth in GDP of 5.2 percent for the whole of 2021.

INDUSTRY OVERVIEW

Stock & Commodity Exchanges in the US[6]

INDUSTRY DEFINITION

This industry is composed of financial intermediaries that provide physical trading floors or electronic marketplaces where buyers and sellers arrange trades in securities, commodities and related contracts. This report includes a discussion of exchanges and alternative trading systems, as well as broker-dealers that match trades of securities in off-exchange transactions. It excludes a discussion of the trading of debt securities, currencies, real assets and physical commodities.

EXECUTIVE SUMMARY

The Stock and Commodity Exchanges industry has remained a vital part of the Finance and Insurance sector (IBISWorld report 52), especially as trade volumes have increased over the five years to 2021. Industry operators act as intermediaries and provide physical trading floors or electronic marketplaces where buyers and sellers arrange trades in securities, commodities and related contracts. Exchanges facilitate the transfer of assets between market participants in different locations and with various timeframes.

Total trade volumes have increased over the five years to 2021, which has helped industry revenue grow during the period. For example, the daily trade volume processed by the Intercontinental Exchange Inc. (ICE) has increased an annualized 9.5 percent over the five years to 2021. This has enabled industry operators to generate more in transaction and clearing fees, which is the largest source of revenue for

[6] *IBISWorld: Stock & Commodity Exchanges in the US Report 52321, December 2021.*

stock and commodity exchanges. Furthermore, revenue growth in 2019 is expected to be supported by several large initial public offerings (IPOs) of private companies, such as Uber and Lyft, seeking to take advantage of elevated equity valuations. As more companies go public, industry operators will generate more revenue from IPO fees and annual listing fees. Industry operators have also benefited in 2020 from an increase in investor uncertainty caused by COVID-19 (coronavirus). This increase in uncertainty has led trading volumes to rapidly increase in 2020. Overall, industry revenue is expected to increase an annualized 8.4 percent over the five years to 2021 to $20.6 billion, including growth of 8.0 percent in 2021 supported by rapidly increasing trading volumes. Additionally, improved scalability of operations is expected to enable industry profit to improve in 2020 and 2021 as well, as a result of increased trading volumes. Profit margin is estimated to be 45.5 percent in 2021.

Over the five years to 2026, industry revenue is forecast to increase at an annualized rate of 3.7 percent to $24.7 billion. Trading volumes will likely wane during the period as investor uncertainty surrounding the coronavirus declines over the five years to 2026. However, industry operators will likely continue to benefit from sustained demand for data they provide to investors. This will help mitigate slower demand for industry operators' services as a result of lower trading volumes.

KEY EXTERNAL DRIVERS

Corporate profit

Corporate earnings fundamentally drive trade volume on stock exchanges. Investors buy and sell stocks based on quarterly and annual results, while also speculating on future growth. Growing corporate profit typically leads to higher trading volume across securities as investors seek returns and portfolio diversification. Corporate profit is expected to increase in 2021, presenting a potential opportunity for the industry.

Investor uncertainty

Rising uncertainty concerning the future price movements of financial instruments and the general state of the economy. Rising uncertainty can materialize in one of two ways. One is that it leads investors to hesitate on making investments leading to lower revenue for industry operators. The other is that large swings in asset prices causes higher trading volumes. Investor uncertainty is expected to decrease in 2021.

Personal savings rate

The personal savings rate is highly correlated with the amount of consumer savings channeled into securities markets. A rise in the personal savings rate generally indicates that consumers are increasing their market investments, which benefits exchanges through higher trading volume and clearing fees. The personal savings rate is expected to decrease in 2021, posing as a potential threat to industry revenue.

Regulation for Investment Management industries

Financial sector regulatory changes, such as the Dodd-Frank Wall Street Reform and Consumer Protection Act, tend to reduce the profit of stock and commodity exchanges. Regulation, particularly in recent years, has transformed the industry's competitive landscape, as well as the composition of market participants and the trading activities of these participants. Higher industry competition as a result of legislative change has put pressure on industry profit, particularly regarding clearing and transaction fees exchanges can charge. Regulation for the Investment Management industries is expected to increase in 2021.

Yield on 10-year Treasury Note

Changes in the yield on 10-year Treasury notes generally reflect changes in the cost of borrowing money and the return on lending money in the

domestic economy. Periods of rising interest rates indirectly dampen demand for riskier investments, such as stocks and commodities, from which exchanges draw revenue. The yield on the 10-year Treasury note is expected to increase in 2021.

Industry Outlook

As economic uncertainty surrounding COVID-19 (coronavirus) dissipate during the period, investor uncertainty is expected to decline. This is expected to result in declining trading volumes compared with 2020. However, should the Federal Reserve regain confidence in the stability of the economy as concerns surrounding coronavirus dissipate during the period, potential interest rate increases could cause lead to increased volatility in financial markets that operators would benefit from. Improving macroeconomic conditions over the five years to 2026 are also expected to lead corporate profit and research and development expenditures to increase an annualized 2.6 percent and 3.1 percent, respectively, over the five years to 2026. These trends are expected to lead to increased demand for industry operators' services for various data products they sell to businesses and investors during the period. Exchanges are expected to continue to focus on expanding their high-margin commodities and derivatives trading platforms, which will increase trading volume during the five-year period as investor preference for these asset classes grows. Overall, industry revenue is forecast to increase at an annualized rate of 3.7 percent to $24.7 billion over the five years to 2026. However, regulatory changes are anticipated to temper growth in the industry's average profit margin. As a result, industry-relevant profit, measured as earnings before interest and taxes, is expected to decrease to 45.1 percent of industry revenue over the five years to 2026.

Though growth in personal savings and shifting preferences should support trade volume over the five years to 2026, regulatory changes that will come into effect during the five-year period may force market participants to deleverage their investments and hold higher collateral for trades. This could potentially dampen trading volume growth and curtail industry revenue growth. Similarly, the Volcker Rule will continue to restrict proprietary trading for banks with federally insured deposits; this will reduce transaction and clearing fees for industry exchanges. Regulators are also likely to increase their scrutiny of over-the-counter (OTC) derivatives markets, which could temper profit for industry participants.

2021 Crypto Market: Year in Review[7]

MARKET UPDATE

The crypto market exploded in early 2021, with bitcoin reaching an all-time high of $65k in mid-April up from its $29K price at the beginning of the year. The growth was fueled by a number of converging factors.

Inflationary concerns highlight the need for good investing options to store value. The public's general familiarity with crypto and blockchain continues to expand and opening a trading account to engage in crypto investing has become much easier compared to previous years. According to a Gallup poll, 13 percent of U.S. investors between 18 and 49 own bitcoin, up from 3 percent in 2018. Players in the space continue to add infrastructure and horsepower to their teams to continue to

[7] *As published by the BDO Asset Management Practice*

institutionalize their offerings. Coinbase held its IPO on April 14. Celebrities and respected business minds like Elon Musk continued to tweet about the upside of crypto, and the list of large institutions investing into tokens and the blockchain ecosystem, including Tesla, MicroStrategy, Paypal, Square, Visa, Morgan Stanley, and many high-profile VC funds, has continued to grow.

Ethereum has performed even better than bitcoin in 2021, starting the year at $731 and reached all-time highs in November, up 532 percent as of November 3rd. The interest in Ethereum and other blockchain protocols supporting smart contracts, particularly in the decentralized finance ("defi") space, continues to expand as these tokens continue to become a larger proportion of the overall crypto market cap. With so many future possibilities, defi has already begun to cut out rent-seeking middlemen, save time, and create more investing and financial structuring opportunities. Real meaningful change is starting to take place in a financial landscape that has remained relatively static compared to other areas in our lives.

Smart contract protocols also have made NFTs (non-fungible token) possible, and the NFT market really took off in Q1. While many of these NFTs launched with a bang and have cooled off since launch, what is clear is there is an appetite for digital collectibles, as people spend more time online cultivating their digital identity and status. It is unlikely that the trend of increasing time and money spent online will reverse anytime soon. NBA Top Shot moments, CryptoPunks, digital art sold on sites like Rarible and Open Sea, music, digital land titles, and even tweets were sold as NFTs. Much like bitcoin where it took many years for people to get comfortable with the concept of digital currency on a blockchain, one might anticipate that as education increases, execution is refined, and a wider variety of collectibles are released, more and more will buy NFTs.

As is familiar to crypto investors, 2021 has also been marked with volatility and corrections. From its $65k high in mid-April, bitcoin fell below $30k in mid-July, marking an approximate 54 percent decline. There were several factors contributing to the correction. Government interest and involvement continues to be viewed as a key inhibitor to industry growth, with China again announcing it would be working to reduce bitcoin mining. While most governments are still trying to figure out how they can regulate crypto, at the same time these governments, including China, continue to work on their own central bank digital currency. According to the Atlantic Council, 81 countries, making up 90 percent of the world's economy are in exploratory stages, with 5 countries in the Caribbean already launching and another 14 (including China) in pilot phases. El Salvador officially adopted bitcoin as legal tender. Mr. Musk also continued to stay busy on twitter, this time noting his concern over crypto mining energy consumption, although more than half the blockchains out there are proof of stake and don't use energy like bitcoin mining.

Since its July low, bitcoin pricing has recovered, reaching new all-time highs in October. Reports noting large corporations like SpaceX, Facebook, the NBA, MLB, and Amazon and their continued acceptance or new work on crypto or crypto-related projects has bolstered confidence. Traditional hedge funds, wall street institutions, and some of the most prestigious venture funds are continuing to heavily invest in the space, and the first bitcoin futures ETF was approved and began

trading in October, with several other crypto ETF products awaiting approval.

APPENDIX VI. ASC 820 GUIDELINES

ASC 820 Guidelines

The definition of fair value retains the exchange-price notion contained in earlier U.S. GAAP definitions of fair value. The standard clarifies that a fair value measurement assumes the asset or liability is exchanged in an orderly transaction between market participants to sell the asset or transfer the liability at the measurement date. An orderly transaction is a transaction that assumes exposure to the market for a period prior to the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities. It is not a forced transaction (i.e. a forced liquidation or distress sale).

In estimating the fair value of the assets, ASC 820 requires specific consideration of the following framework:

- Unit of account for the acquired assets;
- Exit market (i.e. the principal or most advantageous market) for the acquired assets;
- Market participants in the exit market;
- Highest and best use of the acquired assets;
- Valuation premise (In-use or In-exchange) for acquired assets;
- Specific valuation techniques; and,
- Valuation inputs, including a fair value hierarchy.

Unit of Account

Under ASC 820, unit of account represents what is being measured by reference to the level at which the asset or liability is aggregated (or disaggregated) for purposes of applying other accounting pronouncements. The asset or liability might be a standalone asset or liability or a group of assets and/or liabilities. Whether the asset or liability is a standalone asset or liability or a group of assets and/or liabilities is the unit of account. For the purposes of this analysis, the unit of account is the aggregated group of assets that comprises the overall enterprise value of the Company.

Exit Market

According to ASC 820, the principal market is the market in which the reporting entity would sell the asset or transfer the liability with the greatest volume and level of activity for the asset or liability. The most advantageous market is the market in which the reporting entity would sell the asset or transfer the liability with the price that maximizes the amount that would be received for the asset or minimizes the amount that would be paid to transfer the liability, considering transaction costs in the respective market(s). Since there is no active market for the Company or the unit of account, the principal market is the same market as the asset was originally acquired in, that being identified through the sale of the Company, the overall mergers and acquisitions market.

Market Participants

According to ASC 820, market participants are buyers and sellers in the principal or most advantageous market for the asset or liability that are:

- **Independent** of the reporting entity, that is, they are not related parties;
- **Knowledgeable**, having a reasonable understanding about the asset or liability and the transaction based on all available information, including information that might be obtained through due diligence efforts that are usual and customary;
- **Able** to transact for the asset or liability; that is, they are motivated but not forced or otherwise compelled to do so; and,

- **Willing** to transact for the asset or liability; that is, they are motivated but not forced or otherwise compelled to do so.

As such, the market participants for the Company include both financial and strategic buyers that would incorporate the Subject Assets into their existing operations.

Highest and Best Use

A fair value measurement assumes the highest and best use of the asset by market participants, considering the use of the asset that is physically possible, legally permissible, and financially feasible at the measurement date. In broad terms, highest and best use refers to the use of an asset by market participants that would maximize the value of the asset or the group of assets within which the asset would be used.

Highest and best use is determined based on the use of the asset by market participants, even if the intended use of the asset by the reporting entity is different. The highest and best use of the asset establishes the valuation premise used to measure the fair value of the asset. Specifically, the highest and best use incorporates concepts discussed in the following section.

- In-use. The highest and best use of the asset is in-use if the asset would provide maximum value to market participants principally through its use in combination with other assets as a group (as installed or otherwise configured for use). For example, that might be the case for certain non-financial assets. If the highest and best use of the asset is in-use, the fair value of the asset shall be measured using an in-use valuation premise. When using an in-use valuation premise, the fair value of the asset is determined based on the price that would be received in a current transaction to sell the asset assuming that the asset would be used with other assets as a group and that those assets would be available to market participants. Generally, assumptions about the highest and best use of the asset should be consistent for all of the assets of the group within which it would be used.
- In-exchange. The highest and best use of the asset is in-exchange if the asset would provide maximum value to market participants principally on a standalone basis. For example, that might be the case for a financial asset. If the highest and best use of the asset is in-exchange, the fair value of the asset shall be measured using an in-exchange valuation premise. When using an in-exchange valuation premise, the fair value of the asset is determined based on the price that would be received in a current transaction to sell the asset standalone.

Because the highest and best use of the asset is determined based on its use by market participants, the fair value measurement considers the assumptions that market participants would use in pricing the asset, whether using an in-use or an in-exchange valuation premise.

For the purpose of this analysis, the maximum value to market participants has been estimated as being principally derived through the use in combination with other assets as a group. Accordingly, the asset has been measured using an "in-use" valuation premise.

Valuation Premise

The valuation premise used to measure the fair value of an asset depends on the highest and best use of the asset by market participants. If the asset would provide maximum value to market participants principally through its use in combination with other assets as a group (highest and best use is "in-use"), the asset would be measured using an in-use valuation premise. If the asset would provide maximum value to market participants principally on a standalone basis (highest and best use is "in-exchange"), the asset would be measured using an in-exchange valuation premise. For the purposes of this analysis, the

maximum value to market participants has been estimated as being principally derived through the use in combination with other assets as a group. Therefore, the Subject Assets have been valued using an "in-use" valuation premise.

Valuation Technique

There are three fundamental techniques or approaches to valuing an asset: the cost approach, income approach and market approach. Each of the approaches is discussed in more detail in a previous section of this report.

Valuation Inputs

ASC 820 defines inputs as the assumptions that market participants would use in pricing the asset or liability, including an adjustment for risk whenever market participants would include one in pricing the related asset. To increase consistency and comparability in fair value measurements and related disclosures, ASC 820 establishes a fair value hierarchy that prioritizes the inputs used to measure fair value into three broad levels, considering the relative reliability of the inputs. The fair value hierarchy gives the highest priority to quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). In some cases, the inputs used to measure fair value might fall in different levels of the fair value hierarchy. Descriptions of what constitutes each input are as follows:

- **Level 1** inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date;
- **Level 2** inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly; and,
- **Level 3** inputs are unobservable inputs for the asset or liability. Unobservable inputs shall be used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date.

The valuation inputs incorporated herein are both Level 2 and Level 3 inputs, resulting in overall values for the Subject Assets as Level 3.

APPENDIX VII. SCHEDULES

APPENDICES

FTX Trading Ltd.
ASC 805 Purchase Price Allocation of Digital Assets DA AG
Summary of Values
As of November 14, 2021

Schedule 1
($US in Thousands)

	Total Consideration	
(1)	Cash consideration	166,667
(2)	Fair Value of Contingent Consideration	83,479
	Fair Value of 80% equity interest	250,146
(3)	Plus: Minority Interest	62,537
	Total Consideration [A]	312,683

Transaction Details	
Total Consideration Paid	250,146
Percentage Acquired	80%
Strategic or Financial	Strategic
Deal Structure	Non-Taxable

Acquired Assets / Liabilities

Asset Category	Fair Value	Percentage of Total Consideration	Schedule Reference	Valuation Methodology
Tangible Assets				
Net Working Capital	31,503	10.1%	Schedule 7	Net Book Value - Per Management
Fixed Assets	417	0.1%	Schedule 4	Net Book Value - Per Management
Total Tangible Assets [B]	31,920	10.2%		
Intangible Assets				
Trade Names	1,400	0.4%	Schedule 9	Relief from Royalty Method
Operating Licenses	152,100	48.6%	Schedule 11	MPEEM
Total Intangible Assets [C]	153,500	49.1%		
Residual Goodwill [A] - [B] - [C]	127,263	40.7%		

Footnotes

This schedule has been prepared on the basis of the information and assumptions set forth in our report and the attached schedules. It must be read in conjunction with the accompanying report and all the other exhibits included herein. Some totals may not add due to rounding.

(1) Per executed Share Purchase Agreement dated November 14, 2021.

(2) Equals FV of contingent consideration. See Schedule 15 for more details.

(3) Represents the 20.0 percent share of DigitalAssets DA AG previously acquired by FTX Trading Ltd. Equals the implied value of these shares taking into consideration the price paid for 80.0 percent of the shares.

FTX Trading Ltd.
ASC 805 Purchase Price Allocation of Digital Assets DA AG
Weighted Average Return on Assets
As of November 14, 2021

Schedule 2
($US in Thousands)

	Asset Category	Estimate of Fair Value (2)	After-Tax Rate of Return	Percentage of Business Enterprise Value	Weighted Return	Schedule Reference
	Tangible Assets					
	Normalized Net Working Capital	641	7.0%	0.2%	0.0%	Schedule 7
	Fixed Assets	417	10.5%	0.1%	0.0%	Schedule 4
	Total Tangible Assets	1,058		0.4%	0.0%	
	Intangible Assets					
	Trade Names	1,400	37.5%	0.5%	0.2%	Schedule 9
	Operating Licenses	148,300	37.5%	52.6%	19.7%	Schedule 11
	Total Intangible Assets	149,700		53.1%	19.9%	
	Unidentified Intangible Assets					
	Assembled Workforce	9,070	37.5%	3.2%	1.2%	Schedule 14
	Residual Goodwill	121,993	38.5%	43.3%	16.7%	
(1)	Total Residual Goodwill	131,063		46.5%	17.9%	
	Business Enterprise Value	281,821		100.0%	37.8%	
	Plus: Excess/(Deficit) NWC	11,725				
	Plus: Cash and Cash Equivalents	19,136				
	Total Consideration	312,683				
	Transaction Rates of Return					
	Weighted Average Return on Assets				37.8%	
	Weighted Average Cost of Capital (Rounded)				38.0%	
	Internal Rate of Return (Rounded)				38.0%	

Footnotes

This schedule has been prepared on the basis of the information and assumptions set forth in our report and the attached schedules. It must be read in conjunction with the accompanying report and all the other exhibits included herein. Some totals may not add due to rounding.

(1) Goodwill represents the residual value after all identifiable intangible assets were valued; goodwill was not valued independently. Goodwill does not take into account any deferred tax assets or liabilities and the final goodwill amounts may differ from the number shown in the table. Goodwill includes indicated value of assembled workforce.

(2) Given that the transaction has been structured as a Non-Taxable (Stock) deal, the tax amortization benefit has been excluded from the estimated value of the intangible assets for the purposes of the WARA analysis. This has been done in order to make the WARA more comparable to the IRR given the transaction structure.

FTX Trading Ltd.
ASC 805 Purchase Price Allocation of Digital Assets DA AG
Historical & Projected Income Statements
As of November 14, 2021

Schedule 3
Page 1 of 2
($US in Thousands)

	Projected Financials (1) FYE December 31					
	2021	2022	2023	2024	2025	2026
Revenue	$ 11,892	$ 56,411	$ 62,052	$ 80,667	$ 121,001	$ 205,701
Cost of Goods Sold	3,417	3,959	4,355	4,790	5,269	5,796
Gross Profit	8,474	52,452	57,697	75,877	115,732	199,905
Operating Expenses	833	5,652	6,217	8,083	12,124	20,611
EBITDA	7,641	46,800	51,480	67,794	103,608	179,294
Depreciation Expense	-	-	-	-	-	-
EBIT	7,641	46,800	51,480	67,794	103,608	179,294
Interest Expense	5,236	6,513	7,164	9,314	13,970	23,750
Other Income/(Expense)	5,115	5,428	5,970	7,761	11,642	19,791
Pretax Income	7,520	45,714	50,285	66,242	101,279	175,336

Footnotes

This schedule has been prepared on the basis of the information and assumptions set forth in our report and the attached schedules. It must be read in conjunction with the accompanying report and all the other exhibits included herein. Some totals may not add due to rounding.

(1) Historical and projected financial data provided by Management. Financials converted from CHF to USD at a rate of 1.08 CHF to 1 USD per ExchangeRates.org as of the Valuation Date.

Definitions: EBITDA - Earnings Before Interest, Taxes, Depreciation, and Amortization, EBIT - Earnings Before Interest and Taxes

FTX Trading Ltd.
ASC 805 Purchase Price Allocation of Digital Assets DA AG
Historical & Projected Income Statements - Common Size
As of November 14, 2021

Schedule 3
Page 2 of 2

	Projected Financials (1) FYE December 31					
	2021	2022	2023	2024	2025	2026
Revenue	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of Goods Sold	28.7%	7.0%	7.0%	5.9%	4.4%	2.8%
Gross Profit	71.3%	93.0%	93.0%	94.1%	95.6%	97.2%
Operating Expenses	7.0%	10.0%	10.0%	10.0%	10.0%	10.0%
EBITDA	64.3%	83.0%	83.0%	84.0%	85.6%	87.2%
Depreciation Expense	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EBIT	64.3%	83.0%	83.0%	84.0%	85.6%	87.2%
Interest Expense	44.0%	11.5%	11.5%	11.5%	11.5%	11.5%
Other Income/(Expense)	43.0%	9.6%	9.6%	9.6%	9.6%	9.6%
Pretax Income	63.2%	81.0%	81.0%	82.1%	83.7%	85.2%

Footnotes

This schedule has been prepared on the basis of the information and assumptions set forth in our report and the attached schedules. It must be read in conjunction with the accompanying report and all the other exhibits included herein. Some totals may not add due to rounding.

(1) Historical and projected financial data provided by Management. Financials converted from CHF to USD at a rate of 1.08 CHF to 1 USD per ExchangeRates.org as of the Valuation Date.

Definitions: EBITDA - Earnings Before Interest, Taxes, Depreciation, and Amortization, EBIT - Earnings Before Interest and Taxes

FTX Trading Ltd.

ASC 805 Purchase Price Allocation of Digital Assets DA AG	Schedule 4
Historical Balance Sheets	Page 1 of 2
As of November 14, 2021	*($US in Thousands)*

		As of November 14 2021
Cash and Cash Equivalents	$	19,136
Accounts Receivable		9,112
Other Current Assets		4,415
Total Current Assets		**32,664**
Net Fixed Assets		417
Other Long-Term Assets		99,141
Total Assets		**132,222**
Accounts Payable		621
Accrued Expenses and Deferred Income		876
Other Current Liabilities		541
Total Current Liabilities		**2,037**
Other Long-Term Liabilities		123,779
Total Liabilities		**125,816**
Total Shareholders' Equity		6,406
Total Liabilities & Shareholders' Equity	**$**	**132,222**

Footnotes

This schedule has been prepared on the basis of the information and assumptions set forth in our report and the attached schedules. It must be read in conjunction with the accompanying report and all the other exhibits included herein. Some totals may not add due to rounding.

(1) Historical financial data provided by Management. Financials converted from CHF to USD at a rate of 1.08 CHF to 1 USD per ExchangeRates.org as of the Valuation Date.

(2) The Balance Sheet as of the Valuation Date was unavailable, therefore the Balance Sheet as of December 31, 2021 is being used as a proxy, per Management.

FTX Trading Ltd.
ASC 805 Purchase Price Allocation of Digital Assets DA AG Schedule 4
Historical Balance Sheets - Common Size Page 2 of 2
As of November 14, 2021

	As of November 14 2021
Cash and Cash Equivalents	14.5%
Accounts Receivable	6.9%
Other Current Assets	3.3%
Total Current Assets	**24.7%**
Net Fixed Assets	0.3%
Other Long-Term Assets	75.0%
Total Assets	**100.0%**
Accounts Payable	0.5%
Accrued Expenses and Deferred Income	0.7%
Other Current Liabilities	0.4%
Total Current Liabilities	**1.5%**
Other Long-Term Liabilities	93.6%
Total Liabilities	**95.2%**
Total Shareholders' Equity	4.8%
Total Liabilities & Shareholders' Equity	**100.0%**

Footnotes

This schedule has been prepared on the basis of the information and assumptions set forth in our report and the attached schedules. It must be read in conjunction with the accompanying report and all the other exhibits included herein. Some totals may not add due to rounding.

(1) Historical financial data provided by Management. Financials converted from CHF to USD at a rate of 1.08 CHF to 1 USD per ExchangeRates.org as of the Valuation Date.

(2) The Balance Sheet as of the Valuation Date was unavailable, therefore the Balance Sheet as of December 31, 2021 is being used as a proxy, per Management.

FTX Trading Ltd.
ASC 805 Purchase Price Allocation of Digital Assets DA AG
Internal Rate of Return
As of November 14, 2021

Schedule 5
($US in Thousands)

	Projected Financials FYE December 31									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	Residual
(1) Revenue	$ 11,892	$ 56,411	$ 62,052	$ 80,667	$ 121,001	$ 205,701	$ 257,127	$ 282,839	$ 296,981	$ 305,891
Revenue Growth	*NA*	*374.4%*	*10.0%*	*30.0%*	*50.0%*	*70.0%*	*25.0%*	*10.0%*	*5.0%*	*3.0%*
(1) Cost of Goods Sold	3,417	3,959	4,355	4,790	5,269	5,796	7,245	7,970	8,368	8,619
Gross Profit	8,474	52,452	57,697	75,877	115,732	199,905	249,881	274,870	288,613	297,271
Gross Profit Margin	*71.3%*	*93.0%*	*93.0%*	*94.1%*	*95.6%*	*97.2%*	*97.2%*	*97.2%*	*97.2%*	*97.2%*
Operating Expenses	833	5,652	6,217	8,083	12,124	20,611	25,763	28,340	29,757	30,649
EBITDA	7,641	46,800	51,480	67,794	103,608	179,294	224,118	246,530	258,856	266,622
EBITDA Margin	*64.3%*	*83.0%*	*83.0%*	*84.0%*	*85.6%*	*87.2%*	*87.2%*	*87.2%*	*87.2%*	*87.2%*
(2) Depreciation	202	698	601	636	804	1,073	1,232	1,832	2,285	2,057
EBIT	7,439	46,102	50,878	67,158	102,803	178,221	222,886	244,697	256,572	264,565
EBIT Margin	*62.6%*	*81.7%*	*82.0%*	*83.3%*	*85.0%*	*86.6%*	*86.7%*	*86.5%*	*86.4%*	*86.5%*
(3) Taxes	893	5,532	6,105	8,059	12,336	21,387	26,746	29,364	30,789	31,748
Net Operating Profit After Tax	6,546	40,570	44,773	59,099	90,467	156,835	196,140	215,334	225,783	232,817
Plus: Depreciation	202	698	601	636	804	1,073	1,232	1,832	2,285	2,057
(4) Less: Increase/(Decrease) in DFCFNWC	-	2,401	304	1,004	2,176	4,569	2,774	1,387	763	481
(5) Less: Capital Expenditures	119	564	621	807	1,210	2,057	2,571	2,828	2,970	2,057
Free Cash Flows	6,629	38,302	44,449	57,925	87,886	151,282	192,026	212,951	224,335	232,337
Partial Period Adjustment	0.13									
Present Value Period	0.06	0.63	1.63	2.63	3.63	4.63	5.63	6.63	7.63	
Present Value Factor @ 37.6%	0.980	0.818	0.595	0.432	0.314	0.228	0.166	0.121	0.088	
Present Value of Free Cash Flows	$ 836	$ 31,339	$ 26,432	$ 25,034	$ 27,604	$ 34,534	$ 31,858	$ 25,676	$ 19,658	

Sum of Present Value of Free Cash Flows	222,970
(6) Discounted Residual Value	58,851
Fair Value of Business Enterprise	**$ 281,821**
Plus: Excess/(Deficit) NWC	11,725
Plus: Cash and Cash Equivalents	19,136
Fair Value of Invested Capital	$ 312,683
Internal Rate of Return ("IRR")	**38.0%**

Residual Year Cash Flow	232,337
Capitalization Rate	34.6%
Residual Value	671,594
PV Factor	0.088
Present Value of Residual Value	58,851

Footnotes

This schedule has been prepared on the basis of the information and assumptions set forth in our report and the attached schedules. It must be read in conjunction with the accompanying report and all the other exhibits included herein. Some totals may not add due to rounding.

(1) Projected financial data provided by Management. Beyond 2026 revenue growth rates were tapered down to bring the business to a normalized level residual growth rate. 2027 to 2029 margins represent an average of the prior 5 years.

(2) Estimated depreciation is based on book value and provided by Management.

(3) Based on an estimated Federal and statutory blended tax rate of 12.0%.

(4) Change in DFCFNWC based on normalized working capital level of 5.4%. Refer to Schedule 7 for further detail.

(5) Capital expenditures assumed to be 1.0 percent of revenue.

(6) Residual Value calculated based on Gordon Growth Model.

Definitions: EBIT - Earnings Before Interest and Taxes, EBITDA - Earnings Before Interest, Taxes, Depreciation, and Amortization, FYE - Fiscal Year End, DFCFNWC - Debt Free, Cash Free Net Working Capital

FTX Trading Ltd.
ASC 805 Purchase Price Allocation of Digital Assets DA AG
Weighted Average Cost of Capital
As of November 14, 2021

Schedule 6

(1) Guideline Public Company	Observed Beta (1)	Debt (Book) as a % of Equity	5 Yr. Historic Capital Structure	Effective Tax Rate	Unlevered Beta	Re-Levered Beta (2)
ADVFN Plc	1.00	2.0%	2.0%	12.0%	0.98	1.10
Robinhood Markets, Inc.	NM	14.3%	12.5%	46.1%	NM	NM
Coinbase Global, Inc.	3.34	3.1%	3.0%	21.2%	3.26	3.67
Voyager Digital Ltd.	2.72	0.9%	0.8%	12.0%	2.70	3.04
The Charles Schwab Corporation	1.04	15.6%	13.5%	23.3%	0.93	1.04
E*TRADE Financial, LLC	0.33	25.5%	20.3%	31.9%	0.28	0.32
Interactive Brokers Group, Inc.	0.79	136.0%	57.6%	6.0%	0.35	0.39
Nasdaq, Inc.	0.88	23.8%	19.2%	34.7%	0.77	0.86
Euronext N.V.	0.33	14.2%	12.4%	29.5%	0.30	0.34
Intercontinental Exchange, Inc.	0.87	18.1%	15.3%	21.5%	0.76	0.86
Hong Kong Exchanges and Clearing Limited	0.33	0.8%	0.8%	14.2%	0.33	0.37
Maximum	3.34	136.0%	57.6%	46.1%	3.26	3.67
Third Quartile	1.03	20.9%	17.3%	30.7%	0.97	1.09
Average	1.16	23.1%	14.3%	23.0%	1.07	1.20
Median	0.88	14.3%	12.5%	21.5%	0.76	0.86
First Quartile	0.44	2.6%	2.5%	13.1%	0.33	0.37
Minimum	0.33	0.8%	0.8%	6.0%	0.28	0.32
Selected			12.5%	12.0%		1.20

Cost of Equity (Ke) - MCAPM Method		
Risk-Free Rate (Rf)	2.0%	The risk-free rate is based on the yield of 20-year constant maturity U.S. Treasury bonds per the Nov 14, 2021 FRB: H.15 Statistical Release.
Re-levered Beta (Be)	1.20	Be = Ba x [1 + (Wd / We) x (1 - T)]
Equity Risk Premium (Rm - Rf)	6.0%	See Footnote 3.
Adjusted Equity Risk Premium	7.2%	Be (Rm - Rf)
Size Premium (SP)	5.0%	The size premium is based on 0.0501 D&P Cost of Capital Navigator issued by Duff & Phelps Corporation: 10 decile.
Company Specific Risk Premium (CSRP)	28.0%	Based on the risk of achieving the projections. We note the projections are significant and represent a significant improvement in the performance of the the target company. Furthermore, we note the target is operating in a segment where the underlying asset class is relatively new and extremely volatile.
Cost of Equity	42.2%	Ke = Rf + Be (Rm - Rf) + SP + CSRP
After-Tax Cost of Debt (Kd)		
Pre-Tax Cost of Debt	3.3%	See Footnote 4.
Tax Rate	12.0%	Based on an estimated Federal and statutory blended tax rate of 12.0%.
After-Tax Cost of Debt	2.9%	Kd = Kd (1 - T)
Weighted Average Cost of Capital		
Equity % of Capital (We)	87.5%	The capital structure is based on levels typical in the Company's industry, as represented by the guideline public companies.
Cost of Equity (Ke)	42.2%	
Weighted Cost of Equity	36.9%	We x Ke
Debt % of Capital (Wd)	12.5%	The capital structure is based on levels typical in the Company's industry, as represented by the guideline public companies.
Cost of Debt (Kd)	2.9%	
Weighted Cost of Debt	0.4%	Wd x Kd
WACC (Rounded)	**37.5%**	

Footnotes

This schedule has been prepared on the basis of the information and assumptions set forth in our report and the attached schedules. It must be read in conjunction with the accompanying report and all the other exhibits included herein. Some totals may not add due to rounding.

(1) Source: S&P Capital IQ.

(2) The re-levered betas represent 5-year monthly betas, unless otherwise noted.

(3) The equity risk premium was selected based on BDO's review of recently published articles, academic studies, and surveys that attempt to quantify the expected equity risk premium for U.S. common stocks, which reflects the "Supply Side" equity risk premium, per the D&P Cost of Capital Navigator issued by Duff & Phelps Corporation.

(4) The pre-tax cost of debt is based on the yield, as of the Valuation Date, of BAA rated corporate bonds, as rated by Moody's credit rating agency, as published by Moody's.